REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 1-12 are pending.

In the Official Action, Claims 1-4 and 7-10 were rejected under 35 U.S.C. § 103(a) as being obvious in view of Kerfoot et al. (U.S. Patent No. 6,704,511, hereinafter "Kerfoot"); Claims 5 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerfoot in view of Alphonsus et al. (U.S. Patent No. 5,764,405, hereinafter "Alphonsus"); and Claims 6 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerfoot in view of Mathis (U.S. Patent No. 4,726,444).

Briefly recapitulating, Claim 1 is directed to a wavelength division multiplexing and optical transmission apparatus. The apparatus includes

> a plurality of optical transmitting units for modulating a plurality of laser signals having inherent wavelengths with a plurality of data signals and outputting a plurality of modulated optical signals;
>
> optical amplifying means with non-input and for outputting an amplified spontaneous emission light signal;
>
> band pass filtering means for band pass filtering the output of the optical amplifying means and outputting a non-modulated spectrum slice optical signal; and
>
> optical multiplexing means for multiplexing the non-modulated spectrum slice optical signal as a dummy signal of an optical signal to be added in the future with the modulated optical signals and transmitting a multiplexed optical signal,
>
> wherein ***said band pass filtering means includes a first and second plurality of band pass filters connected to a corresponding first and second optical amplifier.***

Claim 7 is directed to a method substantially corresponding to the apparatus of Claim 1.

Kerfoot describes a wavelength division multiplex optical signal including a WDM combiner to provide a source signal, at least one transmitter coupled to an input of the WDM combiner, a broadband noise source, and a filter coupled between the broadband noise source and another input of the WDM combiner in one embodiment, the filter is an optical notch filter. In another embodiment the filter includes a WDM demultiplexer coupled through plural filters to provide a plurality of noise signals and a WDM multiplexer coupled through at least one filter of the plural filters to respective noise signals.

In Kerfoot, head end 130 provides a source signal that combines information signals and filtered noise signals. Information signals come from one or more transmitters 150. At the same time, filtered noise signals come from noise source 138 through filter circuitry 140. The filter blocks optical signals at wavelengths that correspond to the wavelengths of the information signals from the transmitters 150 so noise is not added to the desired information signals. However, the filter passes optical signals (e.g., noise signals from broadband noise source 138) at wavelengths not within the stop band. By loading unused channels (called idler channels) with noise channels, the information signals on the used channels will not draw all of the power from optically pumped fiber amplifiers in repeaters 110. Instead, the noise signals carried to the idler channels will draw their proportionate share of the repeaters power as if they were information signals. In this way, all WDM channels will appear to be fully loaded from their initial operation. Even some of the channels are loaded with noise. As more capacity is needed from network 100, additional transmitters 150 are added and filter circuitry 150 is modified or replaced so as to block optical signals at the wavelengths of the information signals provided by transmitters 150.[1]

As acknowledged by the Official Action, Kerfoot does not disclose or suggest an optical amplifying means including at least two optical amplifiers and a band pass filtering

[1] Kerfoot, column 4, lines 16-42.

means including a first and second plurality of band pass filters connected to a corresponding first and second optical amplifier. Nonetheless, the Official Action states that Applicants' claimed invention is obvious in view of Kerfoot.

MPEP §706.02(j) notes that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Also, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicants' disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir.1991). Without addressing the first two prongs of the test of obviousness, Applicants submit that the Official Action does not present a *prima facie* case of obviousness because Kerfoot fails to disclose all the features of Applicants' claimed invention.

Because the Official Action notes that none of the cited references disclose or suggest Applicants' claimed features, Applicants interpret the rejection to be based upon Official Notice. Indeed, the Examiner may take official notice of facts outside of the record which are capable of instant and unquestionable demonstration as being "well-known" in the art.[2] However, as set forth in M.P.E.P. § 2144.03, if an applicant traverses an assertion made by an Examiner while taking official notice, the Examiner should cite a reference in support of their assertion. The Official Action points to the fact that Kerfoot uses bandpass filters in another aspect of their disclosure. First, Applicants do not consider the features for which Official Notice were taken to be "of such notorious character that official notice can be taken."

[2] *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970)

Second, in view of the fact that Kerfoot specifically uses bandpass filters elsewhere, but not in the manner suggested by the Official Action, Applicants submit that Kerfoot effectively teaches away from the Official Action's proposed combination of elements.

In effect, the outstanding rejection does little more than attempt to show that parts of the inventive combination of Claims 1 and 7 were individually disclosed by Kerfoot and to suggest that such a showing is all that is necessary to establish a valid case of *prima face* obviousness. The PTO reviewing court recently reviewed such a rationale and dismissed it in *In re Rouffet*, 149 F. 3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) as follows:

> As this court has stated, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983); see also *Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1579-80, 219 USPQ 8, 12 (Fed. Cir. 1983) ("Most, if not all, inventions are combinations and mostly of old elements."). Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996). To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. [emphasis added.]

There has been no such showing of those required reasons made in the rejection. In fact, the rejection is premised on a combination that is contrary to Kerfoot's explicit disclosure.

Furthermore, as seen in Fig. 7 and described on page 29, lines 11-28 of Applicants' originally filed specification, the claimed invention does not make redundant a broadband noise source (as in Kerfoot relative to noise source 13). Instead, the amplified spontaneous emission light signal output from the optical amplifier 32 is divided into a plurality of

amplified spontaneous emission light signals.[3] Then, a plurality of dummy signals from the light dividing element 33 are multiplexed in the optical multiplexer 38 with the plurality of amplified spontaneous emission light signals. Thus, when one of the filtered dummy signals is degraded, redundancy (n+l) in one of the optical amplifiers (the first and second amplifiers) is used to emphasize gains of amplified spontaneous emission light signals of wavelengths adjacent to the specific degraded wavelength. Therefore, transmission quality is not adversely influenced by the lack of an amplified spontaneous emission light signal of the specific wavelength. Applicants submit the failure of Kerfoot to disclose or suggest any issues relating to the above-discussed objective of the claimed invention is another reason why it would not have been obvious for one ordinary skill in the art to insert Applicants' claimed bandpass filters into the circuit of Kerfoot in the manner suggested by the Official Action.

In addition, as seen in Fig. 7 and described on page 27, line 24 – page 28, line 24 of Applicants' specification, "Because the number of wavelengths of the multiplexed optical signal input to the optical amplifier repeater approaches the designed number of wavelengths, the same gain profile as that of the optical amplifier repeater can be maintained in the optical amplifier repeater, a gain distribution of the modulated optical signals output from the optical transmitting units 3-m to 3+m is flattened in the optical amplifier repeater, and the transmission quality of the modulated optical signals can be improved." This technical objective is also not disclosed or suggested in Kerfoot. Applicants submit the failure of Kerfoot to disclose or suggest any aspects relating to this additional objective of the claimed invention is another reason why it would not have been obvious for one ordinary skill in the art to insert Applicants' claimed bandpass filters into the circuit of Kerfoot in the manner suggested by the Official Action.

[3] Specification, page 26, line 30 to page 27, line 23.

As suggested by the Official Action, Alphonsus and Mathis do not cure the deficiencies of Kerfoot. Because Kerfoot, Alphonsus and Mathis, individually or in combination, fail to disclose or suggest all the elements of independent Claims 1 and 7, Applicants submit the inventions defined by Claims 1 and 7, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.[4]

Accordingly, in light of the previous discussion, Applicants respectfully submit that the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

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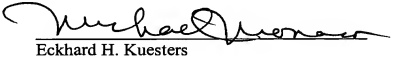

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[4] MPEP § 2142 "...the prior art reference (or references when combined) must teach or suggest **all** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."